Chapter 1

***Occupational Health and Safety (OH&S):** Evaluation and control of hazards associated with the work environment

Can be chemical, biological, and physical agents to psychological disorders such as stress

***Occupational Injury:** Any cut, fracture, sprain or amputation resulting from a workplace accident

***Occupational Illness:** Any abnormal condition or disorder caused by exposure to environmental factors associated with employment

***Lost-time injury:** A workplace injury that results in the employee missing time from work

Late 19th century OHS was first evident

Late 20th century every factory has laws regulating

RCRCLC: Royal Commision on Relations of Capital and Labour in Canada

Improved worker's standards by mandating regular inspections

Compensated injured workers regardless of who's fault it was

60s and 70s Canadian Labour Code was formed

RCHSWM: Royal Commission on Health and Safety of Workers in Mines

First commission to come up with 3 rights to workers

Right to refuse unsafe work

Right to participate in identifying and correcting safety problems

Right to know workplace hazards

***volenti-non-fit injuria :** To him that is willing, no harm or injury is done

Dominant model pre 20th century which basically meant workers assumed the risk on the job and the employer was never held liable

Why care about OHS?

Economic

Direct cost: training and replacement

Indirect cost: work stoppages, decreased worker morale

Legal

Occupational Health and Safety Act states that the employer must exercise due diligence and take every precaution to protect the worker

Moral

Management and employees must comply for the safety of the workers to keep morale high and organizational safety records clean

Worker's Comp: Lost-time wages provided to almost every injured worker, removing right of workers to sue their employers

Stakeholders

Government

Worker's compensation act made sure the worker got compensated and employer took liability

Employers

Create policies and post them in prominent areas, make a safety committee, provide proper equipment for workers

Employees

Do their job responsibly, wear PPE

HR

Engineering – developing engineering solutions

Education – supervisor and employee training

Enforcement - enforcing existing rules and regulations

Chapter 2 Legislative framework

An Act: A law that constitutes basic regulations for occupational health and safety

Regulations: Explain how general intent of the act will be applied in specific circumstances

Guidelines and Policies: More specific rules that are not legally enforceable unless it's in a regulation or act

Standards and Codes

Guides established by agencies such as the CSA (Canadian Standards Act Group) and NIOSH (National Institute for Occupational Safety and Health)

IRS: Internal Responsibility system makes sure everyone in the workplace have a responsibility

Joint Health and Safety Committee

Identify dangers or workers, recommend programs or maintenance of equip, obtain important information on dangers

OHS act 43: Work refusal

act 45: bilateral work-stoppage

If a certified member of JHSC? suspects something is dangerous, the supervisor must immediately check it out

***WHMIS Workplace Hazardous Materials Information Sheet**

***WHMIS Legislation:**

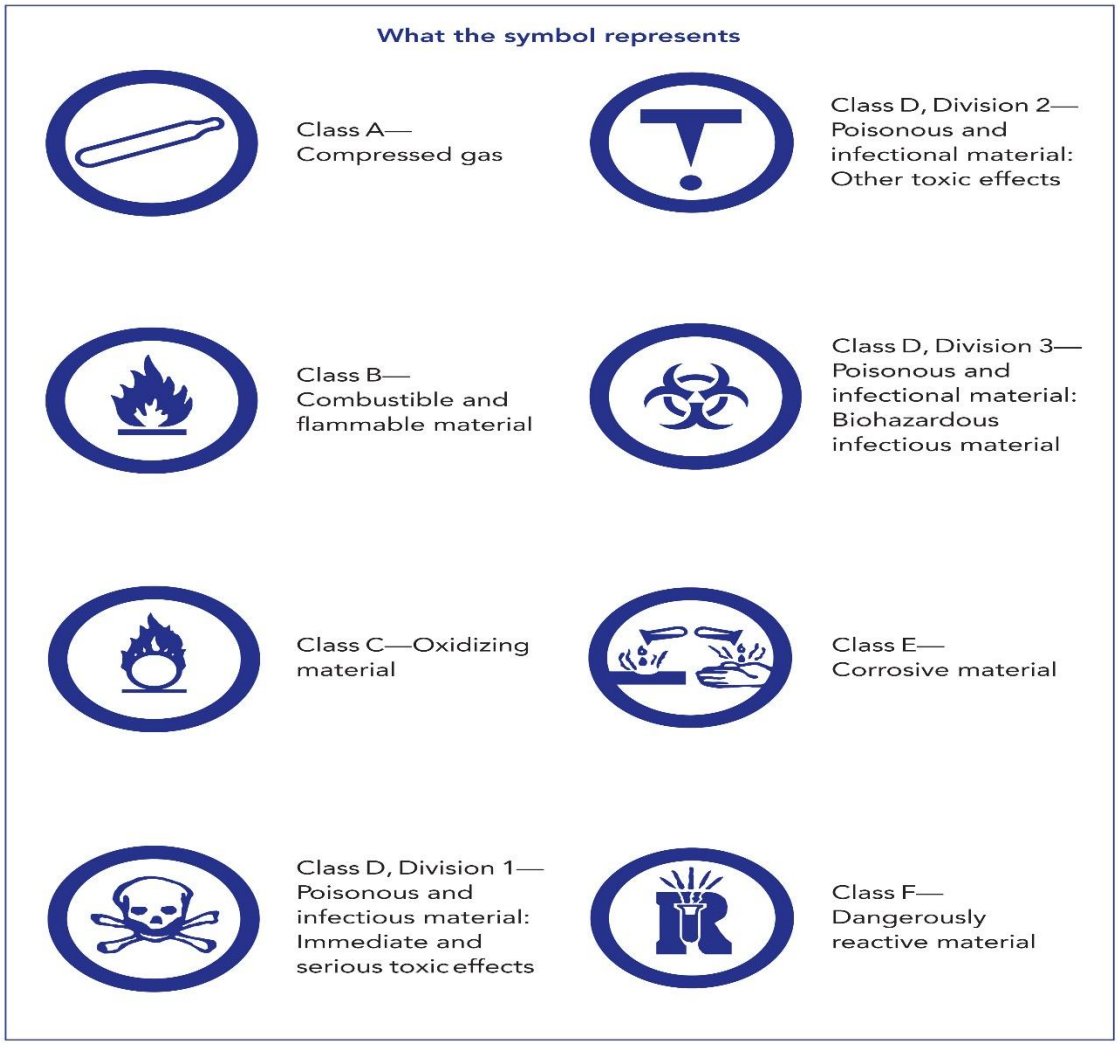
Labels: designed to alert the worker that the container contains a potentially hazardous product

Material safety data sheets (MSDSs): outline a product's potentially hazardous ingredients and procedures for safe handling of the product. Updated the moment new data is available

Employee training

FIGURE 2.1

WHMIS Class Symbols and Subclass Designations



Source: CCHOS, WHMIS - Classification. Found at: http://www.ccohs.ca/oshanswers/legisl/whmis_classifi.html. Reproduced with the permission of the Minister of Public Works and Government Services Canada, 2013.

***Westray legislation, Bill C-45**

Holds the higher ups responsible for any harm done to workers

Chapter 3 - Worker's Compensation

Meredith's principles:

i) Collective liability of employers where all employers and the like are responsible for the costs of compensation

ii) Compensation for worker regardless of their situation

iii) Compensation based on loss of earnings

iv) no fault system (trade of)

v)non adversarial process

***2 main social goals of worker's compensation:**

-To provide services to prevent injuries or reduce psychological impact of injuries when they occur

-To provide training and development to prepare an injured worker to return to work

8 jurisdictions base compensation payment on 90% of net earnings

other 4 base it on 75% of average earnings

Economic loss vs Non economic loss

20/hr turns into 10/hr after an incident 10/hr can be payed compensation. Can't play gold = non economic loss

3 Types of Rehabilitation:

Vocational Rehabilitation

-Helps injured workers return to their place of employment or find similar work elsewhere

Physical Rehabilitation

-Restores worker’s physical function

Social Rehabilitation

-Psychological and practical services to help workers with severe disabilities cope with daily life

Occupational diseases include

Various cancers, skin diseases

Latency Period

The time between exposure to a cause and development of a disease

Stress-related disabilities can be divided into three groups:

Physical injury or occupational disease leading to mental disability

Mental stress resulting in a physical disability, traumatic occurrence, or series of occurrences

Mental stress resulting in a mental condition

- To determine the frequency injury ratio, consider that the term ***frequency*** is the number of medical aid injuries relative to the number of hours worked expressed in a ratio of 200,000.
- Some firms and jurisdictions use a factor of 1,000,000 rather than 200,000. Using the 200,000 figure, the relationship becomes

frequency = number of injuries X 200,000

total hours worked

- Medical aid and lost time injuries considered

Example:

A company that employs 300 people who work 8-hour shifts for 250 days in one year. The total number of hours worked is

250 x 300 x 8 = 600,000

This company has a record of 6 medical-aid injuries with no lost time, 15 minor injuries with 5 days lost, 3 major injuries with 55 days lost, and 6 property damage incidents with no lost time. The total number of injuries is

(6 + 15 + 3) = 24

•The frequency is calculated as:

$$= \frac{24}{600{,}000} \times 200{,}000 = 8$$

•Therefore, this organization has an injury frequency of **8** or **8 to the ratio of 200,000 (8:200,000)**

- Severity of work-related injuries is the ratio of the number of days lost due to injuries to a factor of 200,000.
- Severity is calculated by using the relationship

$$\text{severity} = \frac{\text{number of days lost to injuries}}{\text{total hours worked}} \times 200{,}000$$

- A company that employs 300 people who work 8-hour shifts for 250 days in one year. The total number of hours worked is

250 x 300 x 8 = 600,000

- This company has a record of 6 medical-aid injuries with no lost time, 15 minor injuries with 5 days lost, 3 major injuries with 55 days lost, and 6 property damage incidents with no lost time.
- The total number of injuries is = **(5 + 55) = 60**

$$\text{severity} = \frac{60}{600{,}000} \times 200{,}000 = 20$$

Severity for the company is **20** or **20 to the ratio of 200,000**

Chapter 4 - Hazard Recognition, Risk Assessment and Control

Hazard: Any object, condition, action that can inflict harm

Incident: An event where harm occurred

Risk: probability that a hazard may likely harm someone

Hazard recognition: Identifying the source of the hazard, then identifying the type of hazard

Types Of Hazard:

i) Humans: unsafe acts, poor judgment

ii) Equipment: Defective or unguarded

iii) Environment: Not enough illumination, poor ventilation

iv) Materials: Hazardous chemicals and mishandling

v) Processes: When all of the above combine it can be dangerous

***Hazard identification program**

system of identifying all workplace hazards

i) **Walk through survey** where super accompanies JHSC and physically observes the facility

ii) **Safety sampling** where the members record their observations

iii) **Task and Job inventory** analyze and associate job description and job specifications

iv) **Reports and Audits** Review all reported incidents and accidents

v) **Hazard analysis** looking at the job at hand and indicating where a hazard may occur.

^ Most common type of analysis is analysis tree and there's 2 types

Positive tree indicating how the job must be done and Fault tree showing step by step process where a fault may occur

***Risk**

- **Risk = Probability x Consequences x Exposure**

- **Probability/Likelihood – (how likely)**
    - The chance or likelihood that an event will occur and will result in harm
    - *Very likely, Likely, Unlikely, Very unlikely*
- **Consequences/Severity – (how bad)**
    - The results or severity of the injury
    - *Slightly harmful, Moderate harm, Extremely harmful*
- **Exposure/Frequency – (how often)**
    - Number of times a contact is made with the event

Two broad types of injury:

Overt traumatic: worker comes into contact with energy source such as material or machine. Struck by over head materials, falling,

Over exertion: Caused by worker excessive physical effort and Repetitive motion. Lifting

RSI: Repetitive strain injuries

Hazard control: The program or process used to establish preventative and corrective measures

<u>Hazard control comprises of 3 levels of intervention</u>

Precontact control : Addressing issues before an incident or accident occurs. Isolation, Housekeeping, Safe guarding

Contact control: Identifying ways in which a hazardous situation can be prevented from becoming worse and harming workers. If machine is damaged, it must be controlled

Postcontact control : Putting in place medical and cleanup operations and ensuring that the event cannot be repeated. Ensure any injured are treated, Lock out machinery, Keep unauthorized people away, determine what can be salvaged from machine, contact JHSC and affiliated members to report incident and communicate it to workers

Engineering control: modifying the machine to prevent any injuries from occuring

Administrative control: Training employees, making sure qualified people are operating machine